

# Overlooked and Underserved in Harlem: A Population-Based Survey of Adults with Asthma

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The prevalence of asthma has increased over the past two decades; if this trend persists over the next two decades, the number of individuals with asthma in the United States will double by 2020, affecting 29 million Americans. Many of these individuals will be adults. Recent community-based participatory research in Harlem has focused on children with asthma, but little is known about the prevalence and burden of asthma among adults. We conducted a population-based probability sample of Central Harlem adults 18–65 years of age from 1992 to 1994. Asthma was one of three ambulatory care-sensitive conditions surveyed. We used an additional set of questions regarding asthma management and burden for those respondents who reported they had asthma. The prevalence of self-reported asthma was 14% in this population-based sample of Central Harlem adults. Respondents with asthma reported remarkably high rates of emergency department (ED) visits for asthma, but women were more likely than men to report two or more ED visits in the year prior to interview (38% vs. 18%). Women with asthma were also more likely than men with asthma to report activity restrictions because of asthma (61% vs. 26%). The burden of asthma among adults in Central Harlem is considerable. We urgently need comprehensive health approaches to address the high prevalence of health risks related to multiple chronic diseases, notably smoking and obesity. Key priorities are to determine which community education, prevention, and promotion programs are most effective and will best serve Harlem adults. **Key words:** adults, African Americans, asthma, disease management, healthcare utilization, population-based survey, urban health. *Environ Health Perspect* 110 (suppl 2):217–220 (2002). <http://ehpnet1.niehs.nih.gov/docs/2002/suppl-2/217-220northridge/abstract.html>

Asthma prevalence has increased over the past two decades; if this trend persists over the next two decades, the number of people with asthma in the United States will double by 2020, to affect 29 million Americans (1). New York City, with less than 3% of the U.S. population, reported 6% of asthma hospitalizations and 7% of asthma deaths in the United States in 1986 (2). Hospitalization and death rates among Blacks and Latinos in New York City were 3–5.5 times that of Whites (2). Between 1989 and 1991, the New York City annual asthma hospital admission rates per 100,000 were 1,003 for Latinos, 810 for African Americans, 242 for Whites, and 681 overall. The Bronx and upper Manhattan have the highest hospitalization rates for asthma in New York City (3,4).

The Department of Health and Human Services Healthy People 2010 report (5), in outlining the prevention agenda for the United States, identifies eight objectives related to asthma: to decrease deaths, hospitalizations, emergency department visits, activity limitations, and the number of school or work days missed; to increase the number of persons who receive appropriate care according to National Asthma Education and Prevention Program guidelines; to increase the number of persons who receive formal patient education; and to establish a surveillance system (6).

To successfully meet these objectives, we need a better understanding of the burden of

asthma across the age spectrum in the communities hardest hit by the epidemic. This article helps fill a gap in the understanding of asthma by examining a community-based probability sample of adults in Central Harlem, New York City. Although previous work has focused on children, adults in Harlem suffer from the highest excess morbidity and mortality of any age group in the community (7). Also, Harlem adults lack access to good primary healthcare and preventive services (8). Here we describe the burden of asthma, assess asthma management, and discuss needed interventions among the overlooked and underserved adults with asthma in Harlem.

## Methods

### Sample

The sampling scheme for the Harlem Household Survey (HHS) has been previously described (9). In brief, the HHS is a population-based probability sample of Central Harlem adults conducted from 1992 to 1994. Household members were eligible for participation in the survey if they were 18–65 years of age, spoke English, and were able to answer the interview questions. Of the 963 adults originally selected, 695 successfully completed the survey, yielding a response rate of 72%. Most of the nonresponse was due to the inability to contact the selected resident after repeated attempts. The

average number of attempts required to obtain a completed survey was 10. Trained community residents conducted face-to-face interviews using a structured questionnaire. The survey took approximately 60–90 minutes to complete. We compensated respondents \$10 for their participation. The composition of the sample was 59% women, 86% Black non-Hispanic, 52% unemployed, and 80% with a high school diploma or lower level education [see Fullilove et al. (9)].

### Measures

**Asthma.** One of three ambulatory care-sensitive conditions queried about in the HHS. We asked all respondents whether they have ever had asthma and, if so, how old they were when they first had asthma and when did they last see a doctor for asthma.

**Demographics.** Age, gender, education measured as highest degree earned, employment status, and annual household income, presented in discrete categories (Table 1).

**Smoking history.** We adapted this from the New York State Behavioral Risk Factor Survey. We defined “current smokers” as persons who had smoked 100 or more cigarettes in their lives and are currently smoking; “former smokers” as persons who had smoked 100 or more cigarettes in their lives but do not currently smoke; and “never smokers” as persons who had never smoked or had smoked fewer than 100 cigarettes in their lives (10).

**Obesity.** A body mass index (BMI) of  $\geq 30$  kg/m<sup>2</sup>, calculated from self-reported weight and height.

**Healthcare coverage of respondents.** “Public” (Medicaid, Medicare), any “private,” or “uninsured” (none) (8).

**Usual source of care.** Present if respondents answered “yes” to the following question: “Are there particular health people you

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**Table 1.** Prevalence of self-reported asthma among Harlem residents 18–65 years of age by select characteristics: HHS, 1992–1994 (*n* = 695).

Characteristic	Percent (95% CI)
Age (years)	
18–29	18 (15,21)
30–44	14 (12,17)
45–65	10 (8,12)
Gender	
Male	13 (10,15)
Female	15 (12,17)
Highest degree earned	
No high school diploma/GED	14 (12,17)
High school diploma or higher	14 (11,16)
Employment status	
Unemployed	17 (14,20)
Full or part time	10 (8,13)
Annual household income	
Less than \$9,000	16 (13,18)
\$9,001–\$20,000	14 (11,16)
More than \$20,000	12 (10,15)

Abbreviations: CI, confidence interval; GED, general equivalency diploma.

see, or places where you usually go, when you are sick or need advice about your health?”

**Asthma management and burden.** Questions in this category were only asked if respondents said they had ever had asthma.

**Asthma management items.** Lifetime use of steroids for asthma treatment, emergency department visits in the year prior to interview, lifetime overnight hospitalizations for asthma, and the extent of instruction on asthma management received.

**Asthma burden.** Whether the respondent felt confident about his or her ability to control asthma at home, had daily activities restricted because of asthma, experienced problems or worries about side effects from taking asthma medication, or worried about getting to the doctor or hospital in time for care of an asthma attack.

## Data Analysis

With the full sample, we examined differences in the prevalence of self-reported asthma among selected demographic groups (age, gender, education, employment status, household income). We then examined relationships of health risks and healthcare coverage to self-reported asthma among men and women separately. Finally, for those adults who reported ever having had asthma, we assessed differences between men and women to determine indicators of asthma management and disease burden. We conducted all statistical analyses using SPSS statistical software (11). We tested for differences between groups with the Pearson chi-square test (12).

## Results

The overall prevalence of self-reported asthma in this community-based sample of

**Table 2.** Relationship of health risks and healthcare coverage to self-reported asthma by gender among Harlem residents 18–65 years of age by select characteristics: HHS, 1992–1994 (*n* = 695).

	Men		Women	
	Asthma ( <i>n</i> = 36) <sup>a</sup>	No asthma ( <i>n</i> = 250) <sup>a</sup>	Asthma ( <i>n</i> = 60) <sup>a</sup>	No asthma ( <i>n</i> = 346) <sup>a</sup>
Smoking				
Current smoker	15 (42%)	121 (49%)	28 (47%)	138 (40%)
Former smoker	8 (22%)	32 (13%)	10 (17%)	44 (13%)
Never smoked	13 (36%)	96 (39%)	22 (37%)	163 (47%)
Obese (BMI ≥ 30)	6 (17%)	32 (13%)	25 (42%)	108 (32%)
Healthcare coverage <sup>b</sup>				
Private	11 (31%)	85 (34%)	15 (25%)	136 (39%)
Public	15 (42%)	101 (40%)	38 (63%)	159 (46%)
Uninsured	10 (28%)	64 (26%)	7 (12%)	51 (15%)
Has a usual source of healthcare	24 (67%)	165 (66%)	51 (85%)	274 (79%)

<sup>a</sup>*n* values vary because of missing values. <sup>b</sup>For women,  $\chi^2 = 6.3$ ; *p* = 0.04.

Central Harlem adults 18–65 years of age was 14%. Table 1 presents asthma prevalence among selected demographic groups. Younger adults were more likely to report ever having had asthma than were older adults ( $\chi^2 = 5.9$ , *p* = 0.005). Prevalence of asthma was high among both men and women and regardless of high school education, although among the few respondents with 4-year college degrees (*n* = 67), the prevalence of asthma was somewhat lower (10%; data not shown). Unemployed adults were more likely to report ever having had asthma than were employed adults ( $\chi^2 = 6.4$ , *p* = 0.001). People in households with the lowest income had a higher prevalence of asthma (16%) than those in the highest-income households (12%), but these differences were not statistically significant ( $\chi^2 = 1.2$ , *p* = 0.5).

Table 2 presents health risks and healthcare coverage of adults with asthma and adults without asthma by gender. The prevalence of current smoking was high among both men and women in Harlem, with no significant differences among adults with asthma (42% of men and 47% of women) and adults without asthma (49% of men and 40% of women). Harlem women were more likely to be obese than Harlem men. Women with asthma were more likely to be obese (42%) than women without asthma (32%), and men with asthma were more likely to be obese (17%) than men without asthma (13%), although these differences were not statistically significant. However, when we analyzed BMI as a continuous variable, women with asthma had a significantly higher BMI than women without asthma [mean (standard deviation) = 29.7 (6.8) vs. 27.7 (6.2), *t* = −2.29, *p* = 0.02]. We found no significant differences in BMI among men by asthma status.

Men were more likely to be uninsured than women, but we found no differences among men in insurance coverage by asthma status (e.g., 28% of men with asthma were

uninsured vs. 26% of men without asthma). By contrast, women with asthma were less likely to have private insurance (25%) than women without asthma (39%) and more likely to have public insurance (63%) than women without asthma (46%). Finally, men were less likely to have a usual source of healthcare than women, but we found no differences by asthma status by gender.

Table 3 provides indicators of asthma burden and self-management among respondents with asthma by gender. Consistent with the findings reported above that women were more likely to have a usual source of healthcare than men, women with asthma were more likely to have received instruction on asthma management (71%) than men (42%). Although both men and women in Harlem reported remarkably high rates of ED use for asthma, women were more likely than men to report two or more ED visits in the year prior to interview (38% vs. 18%). Women were also more likely than men to report activity restrictions because of asthma (61% vs. 26%). Finally, more women than men experienced problems or worries about side effects from taking asthma medications and worries about getting to the doctor or hospital in time for care of an asthma attack, but these differences failed to reach significance at *p* = 0.05.

## Discussion

We found a high self-reported lifetime prevalence of asthma in this population-based survey of Harlem residents 18–65 years of age (14%). This is consistent with, albeit somewhat higher than, the estimates from the Pew Commission's report (1) that documented a high prevalence of self-reported “ever had asthma” among those in poverty (11.1% among adults 35–64 years of age) and among Blacks (10.4%). In contrast, our estimate of 14% is considerably higher than the 5.8% national estimate of asthma among Blacks for 1993–1994 reported by the Centers for Disease Control

**Table 3.** Indicators of asthma management and burden among Harlem residents 18–65 years of age with self-reported asthma by gender: HHS, 1992–1994 (*n* = 96).

Indicator	Men ( <i>n</i> = 36)	Women ( <i>n</i> = 60)	$\chi^2$	<i>p</i> -value
Ever used steroids for asthma treatment	6 (18%)	18 (30%)	1.7	0.2
ED visits in past year				
0	25 (76%)	29 (50%)		
1	2 (6%)	7 (12%)		
2 or more	6 (18%)	22 (38%)	5.8	0.06
Ever hospitalized overnight for asthma	17 (49%)	31 (53%)	0.2	0.6
Received a great deal or some instruction on asthma management	14 (42%)	42 (71%)	7.4	0.007
Confident to control asthma at home	30 (88%)	57 (98%)	4.2	0.4
Activities restricted because of asthma	9 (26%)	36 (61%)	11.0	0.0009
Problems or worry about side effects from asthma medication	8 (24%)	25 (42%)	3.0	0.08
Worry about getting to doctor or hospital in time for asthma attack	10 (29%)	29 (48%)	3.2	0.07

and Prevention (CDC) (13). This difference may be partly explained by the CDC's use of 1-year compared with our lifetime prevalence estimate. Because most asthma incidence occurs in the first year after birth (14), and because asthma is not a curable disease (4,6,14), surveys that use 1-year prevalence estimates probably underestimate the true population prevalence of asthma among adults.

Consistent with studies that have shown an increase in asthma incidence over the past three decades (13), we found a higher prevalence among younger adults (18%) than among older adults. Differences in the prevalence of asthma by social class were more difficult to document because most Harlem adults are poor or working class. Nonetheless, unemployed Harlem adults had a significantly higher prevalence of asthma (17%) than employed adults.

Most adults with asthma reported that they have access to healthcare, although lack of health insurance remains a challenging problem, particularly among men, among whom almost a third lack a regular source of care. We found that Harlem adults with asthma self-report rates of current smoking and obesity that are as markedly high as those of their peers without asthma. This places them at continued risk for asthma exacerbations as well as for other chronic diseases, including cardiovascular disorders, diabetes, and certain cancers. Services and programs for health promotion and disease prevention, including programs for smoking cessation and weight control, have yet to make a meaningful impact on this population and need more attention.

Although most Harlem adults with asthma reported that they are confident in their abilities to control their asthma at home, the data presented here indicate that asthma is poorly managed in this community-based sample. This is evidenced by high frequency of ED visits for asthma

attacks, high lifetime reports of overnight hospitalizations for asthma, a high proportion of adults reporting restriction in daily activities because of asthma, and low use of steroids for asthma control compared with national data (13). A survey of adults with asthma who visited the Harlem Hospital ED found that frequent ED visits were related to more severe asthma and co-morbid conditions (15). Consistent with that study, the present survey reveals that even when people with asthma in Harlem receive healthcare services, their asthma symptoms do not markedly improve. The combination of a high prevalence of asthma among Harlem men and women, a high prevalence of risk factors and conditions that exacerbate symptoms (e.g., current smoking, obesity), and poor management of the disease portray a population that is in the midst of an asthma epidemic that has heretofore been overlooked and underserved.

Our study is limited in several important ways. We assessed self-reported lifetime prevalence of asthma but used no independent measures to assess the validity of these reports. It is possible that some adults with asthma were not aware of their disease and therefore could not report it, and that others reported asthma when in fact they had another lung disease (e.g., bronchitis). The cross-sectional nature of the survey precludes establishment of time order or causal effects. For example, we found that unemployment is related to asthma, but we cannot determine whether conditions responsible for unemployment led to more severe asthma or whether more severe asthma led to unemployment. Similarly, we found that women with asthma had higher BMIs than women without asthma, but we do not know whether this was a result of disability and restricted activity or whether their higher BMIs exacerbated symptoms and led to greater detection in this group (16). The lack of more extensive information about disease

management and services did not allow us to test more complex hypotheses regarding asthma outcomes involving individual knowledge and attitudes, community services, and access to healthcare. Finally, the HHS was conducted 7 years ago; therefore it does not reflect changes in the health of the population that may have occurred since then.

The burden of asthma among adults in Harlem is considerable. This prevalence survey cannot address the causes for the high prevalence of asthma in this community. However, environmental factors such as poor air quality and high allergen exposures are known to exacerbate existing respiratory conditions, including asthma (1). Of late, needed research has been funded to examine the incidence of asthma among poor children of color. Still, large numbers of adults in poor communities are suffering from asthma and are not receiving needed services. The results presented here suggest that we urgently need a comprehensive approach to address the high prevalence of risk factors related to multiple chronic diseases, notably smoking and obesity. Comprehensive and ongoing primary care services are necessary to decrease the excess mortality among adults in Harlem (7). Determining what community education, prevention, and promotion programs are most effective and will best serve Harlem adults remains a key priority (17).

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